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39290 7590 03/05/2009

DUANE MORRIS LLP - DC
505 9th Street
Suite 1000
WASHINGTON, DC 20004-2166

EXAMINER

MONIKANG, GEORGE C

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 03/05/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,924

03/18/2004

Robert E. Miller III

H2160-00002

5420

TITLE OF INVENTION: SYSTEM AND METHOD FOR COMPATIBLE 2D/3D (FULL SPHERE WITH HEIGHT) SURROUND SOUND REPRODUCTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	06/05/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

39290 7590 03/05/2009

DUANE MORRIS LLP - DC
505 9th Street
Suite 1000
WASHINGTON, DC 20004-2166

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,924 03/18/2004 Robert E. Miller III H2160-00002 5420

TITLE OF INVENTION: SYSTEM AND METHOD FOR COMPATIBLE 2D/3D (FULL SPHERE WITH HEIGHT) SURROUND SOUND REPRODUCTION

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nonprovisional YES \$755 \$300 \$0 \$1055 06/05/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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MONIKANG, GEORGE C 2614 381-307000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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ART UNIT

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 970 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 970 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/802,924	MILLER, ROBERT E.	
	Examiner	Art Unit	
	GEORGE C. MONIKANG	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/25/2008.
2. ☒ The allowed claim(s) is/are 7-13,17-19,21,22,25-30,33-36,39-44,48-50,52,53 and 56-61.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Patrick Muldoon on 2/27/2009.

The limitations of claims 7, 17, 21, 33, 48 & 52 that states "an encoder for producing an encoded signal ("S.sub.out") from P.sub.in" have been changed to read ***"an encoder for producing an encoded signal ("S.sub.out") from P.sub.in using a transformation matrix S, such that S.sub.out = S * P.sub.in"***.

The limitations of claims 7, 21, 33 & 52 that reads "wherein S comprises the quantities: s (L , FL) s (L , FR) s (L , W) s (L , X) s (L , Y) s (L , Z) s (R , FL) s (R , FR) s (R , W) s (R , X) s (R , Y) s (R , Z) s (C , FL) s (C , FR) s (C , W) s (C , X) s (C , Y) s (C , Z) s (SC , FL) s (SC , FR) s (SC , W) s (SC , X) s (SC , Y) s (SC , Z) s (SL , FL) s (SL , FR) s (SL , W) s (SL , X) s (SL , Y) s (SL , Z) s (SR , FL) s (SR , FR) s (SR , W) s (SR , X) s (SR , Y) s (SR , Z)" has been changed to read ***"wherein S is the matrix comprising the quantities: s (L , FL) s (L , FR) s (L , W) s (L , X) s (L , Y) s (L , Z) s (R , FL) s (R , FR) s (R , W) s (R ,***

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$X) s(R, Y) s(R, Z) s(C, FL) s(C, FR) s(C, W) s(C, X) s(C, Y) s(C, Z) s(SC, FL) s(SC, FR) s(SC, W) s(SC, X) s(SC, Y) s(SC, Z) s(SL, FL) s(SL, FR) s(SL, W) s(SL, X) s(SL, Y) s(SL, Z) s(SR, FL) s(SR, FR) s(SR, W) s(SR, X) s(SR, Y) s(SR, Z)$ "

Allowable Subject Matter

Claims 7-13, 17-19, 21-22, 25-30, 33-36, 39-44, 48-50, 52-53 & 56-61 are allowed.

The following is an examiner's statement of reasons for allowance:

Referring to claim 7, the Jot et al reference (US Patent 7,231,054 B1) discloses a system for producing an output sound field that is representative of an input sound field (*abstract*), comprising: a microphone signal ("P.sub.in") representative of the input sound field wherein P.sub.in comprises B-format channels (*col. 8, lines 43-53*), an FL (front left) channel, and an FR (front right) channel (*fig. 4b: filter bank*); an encoder for producing an encoded signal ("S.sub.out") from P.sub.in using a transformation matrix S, such that $S_{sub.out} = S * P_{sub.in}$ wherein S.sub.out comprises an ITU-compatible six channel signal (*col. 12, lines 47-62*); a decoder for producing a decoded signal ("P.sub.out") from S.sub.out wherein P.sub.out comprises B-format channels, an FL channel, and an FR channel (*fig. 2; fig. 11; col. 12, lines 47-62*); and a plurality of speakers for producing the output sound field from P.sub.out (*fig. 2; fig. 11; col. 12, lines 47-62*). The Ito reference (US Patent Pub. 2002/0172370 A1) discloses a microphone array for receiving the input sound field and producing therefrom (*Ito, fig. 1*). The Jot et

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al and lto reference taken independently or in combination with each other do not disclose or fairly suggest a system wherein S is the matrix comprising the quantities: $s(L, FL) s(L, FR) s(L, W) s(L, X) s(L, Y) s(L, Z) s(R, FL) s(R, FR) s(R, W) s(R, X) s(R, Y) s(R, Z) s(C, FL) s(C, FR) s(C, W) s(C, X) s(C, Y) s(C, Z) s(SC, FL) s(SC, FR) s(SC, W) s(SC, X) s(SC, Y) s(SC, Z) s(SL, FL) s(SL, FR) s(SL, W) s(SL, X) s(SL, Y) s(SL, Z) s(SR, FL) s(SR, FR) s(SR, W) s(SR, X) s(SR, Y) s(SR, Z)$ wherein: L represents a left speaker channel for an ITU-compatible six channel signal, R represents a right speaker channel for an ITU-compatible six channel signal, C represents a center speaker channel for an ITU-compatible six channel signal, SC represents a surround center speaker channel for an ITU-compatible six channel signal, SL represents a surround left speaker channel for an ITU-compatible six channel signal, SR represents a surround right speaker channel for an ITU-compatible six channel signal; FL represents the front left speaker channel, FR represents the front right speaker channel; W represents a B-format channel, X represents a B-format channel, Y represents a B-format channel, Z represents a B-format channel; and wherein $s(\alpha, \beta)$ represents a transformation quantity relating the respective α and β channels. as recited by independent claim 7. These aspects as summarized above are neither anticipated nor obvious by the prior arts of record.

Claims 21, 33 & 52 are allowed for the same reason as claim 7.

Claims 8-13 depend on claim 7. Claims 22, 25-30 depend on claim 21. Claims 34-36 & 39-44 depend on claim 33. Claims 53, 56-61 depend on claim 52.

The following is an examiner's statement of reasons for allowance:

Referring to claim 17, the Jot et al reference (US Patent 7,231,054 B1) discloses a system for producing an output sound field that is representative of an input sound field (abstract), comprising: a microphone signal ("P.sub.in") representative of the input sound field wherein P.sub.in comprises B-format channels (col. 8, lines 43-53), an FL (front left) channel, and an FR (front right) channel (fig. 4b: filter bank); an encoder for producing an encoded signal ("S.sub.out") from P.sub.in using a transformation matrix S, such that $S_{sub.out} = S * P_{sub.in}$ wherein S.sub.out comprises an ITU-compatible six channel signal (col. 12, lines 47-62); a decoder for producing a decoded signal ("P.sub.out") from S.sub.out wherein P.sub.out comprises B-format channels, an FL channel, and an FR channel (fig. 2; fig. 11; col. 12, lines 47-62); and a plurality of speakers for producing the output sound field from P.sub.out (fig. 2; fig. 11; col. 12, lines 47-62). The Ito reference (US Patent Pub. 2002/0172370 A1) discloses a microphone array for receiving the input sound field and producing therefrom (Ito, fig. 1). The Jot et al and Ito reference taken independently or in combination with each other do not disclose or fairly suggest a system where a first two of said speakers are positioned so that: azimuthally, one is approximately 8 degrees to the left of and the other is approximately 8 degrees to the right of the 12 o'clock position of a listener; and elevationally, both are positioned substantially on a horizontal plane that intersects the listener's ears; a second two of said speakers are positioned so that: azimuthally, one is approximately 45 degrees to the left of and the other is approximately 45 degrees to the

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right of the 12 o'clock position of the listener; and elevationally, both are positioned substantially on said horizontal plane; a third two of said speakers are positioned so that: azimuthally, one is approximately 135 degrees to the left of and the other is approximately 135 degrees to the right of the 12 o'clock position of the listener; and elevationally, both are positioned substantially on said horizontal plane; a fourth two of said speakers are positioned so that: azimuthally, one is approximately 90 degrees to the left of and the other is approximately 90 degrees to the right of the 12 o'clock position of the listener; and elevationally, both are positioned above said horizontal plane; and a fifth two of said speakers are positioned so that: azimuthally, one is approximately 90 degrees to the left of and the other is approximately 90 degrees to the right of the 12 o'clock position of the listener; and elevationally, both are positioned below said horizontal plane as recited by independent claim 7. These aspects as summarized above are neither anticipated nor obvious by the prior arts of record.

Claim 48 is allowed for the same reason as claim 17.

Claims 18-19 depend on claim 17. Claims 49-50 depend on claim 48.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/
Examiner, Art Unit 2614

2/15/20009

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614